

CLAIMS

What is claimed is:

5 1. A device for simulating a tubular body part having a mechanism for resisting fluid flow therethrough, comprising:

 a housing having a first end, a second end, and a channel therethrough extending between an inlet at the first end of the housing and an outlet,;

10 a plug member positioned within the channel and being sized and shaped to substantially occlude the channel at a predetermined location when a predetermined force is exerted on a first side thereof, the plug member further being movable within the channel so that, when a fluid force within the channel and exerted on a second opposite side of the plug member exceeds the predetermined force, the plug member no longer occludes the channel;

15 an adjustment member movably coupled to the housing; and

 a compression member positioned within the channel in a compressed state so that a first end exerts force on the plug member and a second end exerts force on the adjustment member,

20 wherein the adjustment member is movable relative to the housing to thereby adjust the amount by which the compression member is compressed.

25 2. The device according to claim 1, wherein the adjustment member is movable relative to the housing so that the predetermined force exerted by the compression member on the plug member can be selected to be any force in a physiological range substantially corresponding to the range of forces required to force open the urethral sphincter of a human patient.

3. The device according to claim 1, wherein the adjustment member is movable relative to the housing so that the predetermined force exerted by the compression member on the plug member can be selected to correspond to any pressure on the plug member within the range of approximately 20 to 180 mm Hg.

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4. The device according to claim 1, wherein the channel includes a first channel portion extending inwardly from the housing inlet and a second channel portion in fluid communication with the first channel portion and with the housing outlet, and having a larger cross-section than the first channel portion.

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5. The device according to claim 4, wherein the outlet further comprises at least one aperture extending from the second channel portion laterally through the housing.

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6. The device according to claim 5, further comprising an opening at the distal end of the housing and extending into the second channel portion.

7. The device according to claim 6, wherein the adjustment member is at least partially positioned within the opening at the distal end of the housing and is threadably engaged with the housing.

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8. The device according to claim 7, further comprising a locking member for selectively fixedly securing the adjustment member in place relative to the housing.

9. The device according to claim 4, further comprising a transition zone providing a transition from the first channel portion into the second channel portion,

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wherein a first end of the plug member and the transition zone have substantially complementary configurations.

5 10. The device according to claim 1, further comprising an inflow port having a channel therethrough in fluid communication with the housing channel.

10 11. The device according to claim 1, wherein the plug member is comprised of a material selected from the group consisting of Teflon, polyethylene, polyurethane and silicone.

12. A human urethral sphincter simulator device, comprising:
 a housing having a channel therethrough extending between an inlet and an outlet;

15 an obstruction member positioned within the housing and relative to the channel so as to substantially block fluid flow therethrough when a predetermined force is exerted thereon, the obstruction member further being movable within the channel so that, when a fluid force within the first channel portion exceeds the predetermined force, the obstruction member moves so that it no longer prevents fluid flow through the channel;

20 means for exerting the predetermined force on the obstruction member;

 wherein the means for exerting the predetermined force is adjustable so that the predetermined force can be selected to be a force that substantially corresponds to that which would open a human urethral sphincter.

13. The device according to claim 12, wherein the predetermined force can be selected to correspond to any pressure on the plug member within the range of approximately 20 to 180 mm Hg.

5 14. The device according to claim 12, wherein the means for exerting force further comprises a compression member and an adjustment member, wherein the compression member has a first end exerting a force on the obstruction member and a second end exerting a force on adjustment member, and wherein the adjustment member is movable relative to the housing to compress the compression member
10 more or less.

15 15. The device according to claim 14, wherein the adjustment member is threadably engaged with the housing, and the predetermined force is selected by threadably moving the adjustment member.

16. A method for simulating a human sphincter, comprising:
providing a device including housing having a having a channel therethrough extending between an inlet at the first end of the housing and an outlet, a plug member positioned within the channel and sized and shaped to substantially block
20 fluid flow therethrough when a predetermined force is exerted on a first side of the plug member, the plug member further being movable within the channel so that, when a fluid force within the channel and exerted on a second opposite side of the plug member exceeds the predetermined force, the plug member no longer prevents fluid flow through the channel, an adjustment member movably coupled to the
25 housing, and a compression member positioned within the channel in a compressed

state so that a first end exerts pressure on the plug member and a second end exerts pressure on the adjustment member,

moving the adjustment member relative to the housing until the compression member exerts the predetermined force on the plug member;

- 5 infusing fluid into the channel so as to exert pressure on the second side of the plug member using an infusion device until the force of the infused fluid against the plug member exceeds the predetermined force.